

2013 Economy Report - Australia

1 National Measurement Legislation

Experience with the new national trade measurement system has resulted in the need to make some further minor amendments to the National Measurement Act. These are now in effect and relate to:

- provisions for inspectors to request a driver to stop and move vehicles;
- provisions for inspectors to undertake trial purchases;
- providing discretion for inspectors to allow the continued use of measuring instruments for trade or the continued sale of packaged goods where there is a minor technical infringement, but no material detriment to any affected person; and
- clarifying the definition of a utility meter so that it is not linked to the enforcement part of the Act. This was necessary so that exempt utility meters could still be verified if necessary.

In addition, the *National Measurement Regulations 1999 (Cth)*, have now been amended to provide for organisations that have an authorisation from the Chief Metrologist to maintain Australian primary and secondary standards of measurement (ANSTO and ARPANSA) to verify secondary standards of measurement for ionising radiation.

The NMI has developed drafting instructions for some minor amendments to the *National Trade Measurement Regulations 2009 (Cth)* that include:

- requirements for approaches to weighbridges;
- competency requirements for servicing licensees and weighbridge operators; and
- further lifting the exemption on urban cold water meters for higher capacity meters.

2 Utility Metering

TC12 has now finalised the revision of OIML R46 part 3 for electricity meters and it was approved by CIML 2013 in Vietnam. TC12 is now considering its next projects including:

- transformers (voltage and current);
- energy measures other than Active Energy;
- peak demand, maximum power;
- charging of road vehicles; and
- direct current systems

5 Training

NMI continues to work through the process of assessing more than 2000 verifiers as competent to verify measuring instruments. In the past 12 months we have issued 1309 certificates, referred to as Statements of Attainment, covering a range of instruments classes. We have 8-10 inspectors working full time on this project. Our Licensing section is in the process of imposing a condition on licensees that requires all their verifiers to have a Statement of Attainment for every class of instrument they verify issued by NMI. 25% of our Licensees are fully compliant. We expect by early 2014 all Licensees will be compliant. Once the condition is imposed any verifier who does not have a Statement of Attainment cannot verify and may be in breach if they do so.

Licensing is also imposing a condition on Public Weighbridge Operators that they have at least 1 weighbridge operator who has a Statement of Attainment.

The requirement to demonstrate you are competent has continued to increase attendance at NMI training courses. Very few people are being returned as 'not yet competent' because they are making a real effort to ensure they understand the requirements. Those that are deemed to be 'not yet competent' are being advised they cannot verify until they obtain the statement of attainment.

NMI has increased its number of inspectors since transition in an effort to return the workforce to pre-transition levels. 17 new inspectors have completed 2 qualifications and have been appointed as inspectors. A further 16 new people were employed as assistant trade measurement inspectors in 2013 and are working through their qualifications.

Dr Grahame Harvey on behalf of Dr Valerie Villiere
22 October 2013

2013 Economy REPORT - CANADA

Measurement Canada

Authorized Service Providers for device inspections

As of September 30, 2013, there were 173 organizations authorized to perform inspections of mass, volume, electricity and natural gas measuring devices on behalf of Measurement Canada (MC). The vast majority of these organizations are located across Canada but 9 are located in the United States and Mexico due to the North American Free Trade Agreement. All authorized organizations were closely monitored and subject to audits and follow up inspections.

Timber Dimensional Measuring Devices (TDMD)

Stakeholders in the forestry industry approached Measurement Canada (MC) regarding developing approval and inspection requirements for technology used for measuring (scanning) logs.

A timber measurement workgroup has completed preliminary consultations and work is now well underway on development of requirements for these devices. TDMD will be restricted to measuring roundwood in the forest industry - these devices will not be considered suitable for the measurement of other forest products such as posts, beams or cants. The devices are similar in operation to many MDMD devices except on a larger scale. Operation involves scanning the log with a series of cameras which have been optimized to detect a laser line projected onto the log. The resulting data allows for the generation of a three dimensional representation of the log and subsequently for determination of measurements of the log. The devices are already in use in many modern mills as optimizers. In this capacity, they are programmed to determine cutting solutions in order to maximize recovery and/or profit from a given log.

The devices are designed to measure logs from 10cm in diameter up to 150cm or larger and lengths up to tree length. Typically a TDMD would be fitted with from 4 to 6, or possibly more, scan heads in order to completely scan the log as it passes through the machine. TDMD scanners can operate reliably with logs moving at upwards of 150m/min. Canadian requirements will be based upon the measurement of stem diameters (cm) and length (m). Resolution is expected to be to at least 1cm on diameter and 10cm on length in order to approximate current practices. The devices appear to be capable of much finer resolution. Many diameter measurements may be taken along the length of the stem, but typically at least a top and butt (bottom) diameter will be taken. Diameters will be defined as the circumference of the log divided by the mathematical constant Pi. These measurements will subsequently be used to determine timber volumes, however as the method of determining volume varies from Province to Province, MC will not get involved in this aspect of usage and the devices will initially only be approved for linear measurements and not for direct measurement of volume.

Terms and Conditions for the Approval of Liquid Meters Used to Measure Liquefied Natural Gas (LNG)

MC, in consultation with industry stakeholders, has developed Terms and Conditions for the Approval of liquid meters/dispensers used to measure LNG. These establish a tolerance of 1.5% for the devices and include provisions to account for the extreme cold temperature of the product. Specifically there are provisions for pre-cooling the systems before a delivery, venting the receiving tank to relieve pressure and draining the delivery hose between deliveries. Dispensers are restricted to selling in terms of mass and vapour return lines can not be used during deliveries. MC is currently processing an application for approval of a dispenser, with several other companies showing interest.

Work is currently under way with industry to revise the Terms and Conditions document to include provisions for large measuring systems. Such systems would be allowed to employ vapour return lines under the condition that vapour (boil off gas) returned to storage is measured and subtracted from the delivered quantity. The tolerance on the measured liquid remains at 1.5% while the tolerance on the returned vapour would be 5% as it has much less effect on the delivered quantity. This revision is expected to be completed early in the new year.



2013 ECONOMY REPORT

P.R. China

1. "Metrology Development Plan (2013-2020)" was issued by the State Council, P. R. China

On March 2, 2013, the State Council issued the "Metrology Development Plan (2013-2020)". This is the first time that State Council issued Metrology Development Plan since state founding, which reflects the high attaches to the metrology work from the government.

- Development Objectives:

More solid basis of metrology science and technology, more perfect traceability system, more sound metrology legal system, mainly adapted needs of economic and social development by 2020.

- Main Content of the "plan":

- a. To strengthen basic research on science and technology of metrology

- Strengthen national technology base and research of metrology primary standards
- Strengthen research and development of reference materials
- Strengthen of practical, novel and research on proprietary metrological testing technology
- Strengthen technology and method of system
- To promoting scientific and technological innovation of metrology
- Accelerate the transformation of scientific and technological achievements
- Actively participate in international comparison of metrology
- Revision technical regulation of metrology

- b. To strengthen services and security capacity building of metrology

- To promote service and support capabilities of traceability system
- To improve the national technology infrastructure services platform (base) of metrology
- To build national service system for industrial measurement and testing
- To build regional development support system of metrology
- To build national energy resource service system of metrology
- To promote testing and management system of metrology for Enterprise

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Asia-Pacific Legal Metrology Forum

- Inspection of prepackages goods

5. International cooperation

- Actively participate in relevant OIML TCs' activities (such as OIML TC7/SC4, OIML TC18/SC1, OIML TC6).
- Organize the 2nd China-Russia workshop on energy metrology in Hangzhou, China.
- Organize the China-Germany seminar on D1 in Shanghai.
- Organize the 10th Sino-Japan legal metrology meeting in Qingdao, China.
- Sign the MoU on cooperation in the field of metrology with NMI Certin B.V..
- Sign the MoU on cooperation in the field of legal metrology with measurement Canada.
- Sign the MRA with METAS, Switzerland on NAWI and load cell.
- Sign the MoU on cooperation in the field of metrology with METAS, Switzerland.

6. The activities on World Metrology Day in China

- In 2013, China determine "5.20 World Metrology Day" propaganda theme: Measurement in Daily life. Designed and made posters (set of two, issued a total of 10,000 units), conducted a nationwide post, publicity.
- Dept. of metrology, AQSIQ issued a nationwide 《Notification on organize campaign of 2013"5.20 World Metrology Day"》 which requires all local branch to carry out promotional activities on the topics "Measurement and Life", "Metrology Development Plan". According to this request, all local branch have launched "5.20 World Metrology Day" activities on open-laboratory, metrology benefits people, on-site consultation, free testing and other forms.
- Events on theme of "5.20 World Metrology Day" and the implementation of "Metrology Development Plan" was held on May 20 at the Changping Campus of National Institute of Metrology (NIM), China. Activities include book donation ceremony of "Metrology Development Planning", flag-giving ceremony of publicizing and implementing expedition team of "Metrology Development Plan", Award ceremony of national industrial

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Economy Report Singapore

The Weights and Measures Office (WMO) in SPRING Singapore plays an important role in protecting consumers and traders by regulating the use of weighing and measuring instruments used for trade and pre-packaged goods. It ensures that a uniform and accurate system of weights and measures is used in Singapore, thereby ensuring fair trade and correct measurement for excise tax computation.

Since the revision of the Weights and Measures Act and Regulations in 2006, WMO has made several initiatives to ensure that the Weights and Measures Programme remains relevant for consumers and businesses and, aligned with international practices.

Key initiatives to the Weights and Measures Programme include:

1. Under the Authorised Verifier (AV) Scheme, private sector bodies can apply to be designated by WMO to handle the verification of weighing and measuring instruments for trade use. To date, WMO has designated 25 AVs who are appointed to verify weighing and measuring instruments for trade use.

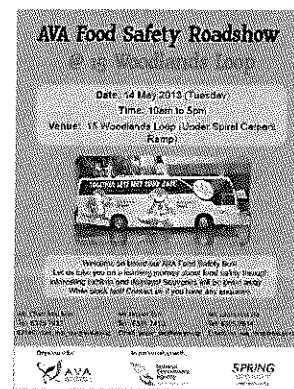
2. To ensure manufacturers, importers and packers of pre-packaged products comply with the requirements of the Average Quantity System or AQS, WMO collaborated with AVA on the following:

(a) Presentation on the AQS in AVA's Industry technical seminars

(b) Manning the CW exhibition booth on AQS in AVA's Food Safety Roadshows

AVA is the food safety, animal and plant health authority in Singapore.

3. A cartoon strip educating consumers on safety information and tips related to SPRING's consumer protection programmes was recently created. It revolves around the daily lives of the Kiang Family. The comic strip campaign was officially launched on 7 July 2013 with the introduction of the Kiang Family to the public. Some of the topics covered thus far included: 'Tips for Smart Shopping and Consumer Safety', 'Hot Over Irons', 'Get What You Pay For' and 'Dress Safe and Look Smart'.



Name of Economy: United States of America

Current Developments in U.S. Legal Metrology:

Major issues on the Agenda of the National Conference on Weights and Measures (NCWM) as of October 2013 and related national initiatives of the National Institute of Standards and Technology (NIST).

1. Legal Metrology Issues related to Alternative-Fuel Vehicles

a. Compressed Natural Gas (CNG) and Liquefied Natural Gas (LNG) Vehicles

With the current situation of an abundant and inexpensive U.S. domestic natural gas supply, the U.S. is significantly increasing its use of natural gas as a vehicle fuel. A natural gas vehicle (NGV) uses compressed natural gas (CNG) or liquefied natural gas (LNG) as a cleaner alternative to other fossil fuels.

There are about 135,000 NGVs and about 1,300 NGV fueling stations in the U.S in 2013. For the same energy content, natural gas costs about half as much as gasoline or diesel fuel. For the past several years, the most prevalent NGVs in the US are fleets of mass-transit local busses which are fueled with CNG at a (non-retail) central location for the fleet.

Because of the inexpensive natural gas fuel costs, the owners/operators of many heavy-use engines that traditionally have used diesel fuel (including long-haul trucks and boats) have been buying or converting their engines to run on natural gas, especially LNG. NIST and NCWM are working to establish new requirements and test procedures for the new retail LNG fuel dispensers that will be installed to service these industries.

b. Electrical Vehicles

Electric vehicles run on battery power, replenished through electrical connections. In the U.S., the primary charging locations are residences, businesses, and storage locations for fleet vehicles. There are minimal legal metrology issues in these locations because the electricity has already been metered and billed by the electrical utility. In these locations, with a standard charger, recharging a typical electric vehicle battery from near-total discharge to full charge usually takes 4-8 hours, with most vehicles charging overnight.

The number of public charging sites for electric vehicles has increased dramatically in the U.S. over the past three years. These sites are usually located in city or store parking lots, and at hotels, airports, and various businesses. The installation of "DC Fast-Charging Stations" with high-speed charging capability can allow consumers to recharge a battery on their electric vehicle from 20% to 80% in about 10 minutes.

The legal metrology issues arise on how the public site is attempting to "sell" the electricity to consumers. Many sites favored a "time-of-connection" charge, but that was found to be not very equitable because of the wide range of charging capabilities of the different types of stations/connections. The key for the weights and measures officials was that the transactions involve a measurable finite quantity of energy so that nationally-standardized requirements for the method of sale could be developed.

performance-based and much less prescriptive. This should help create a much more “level playing-field” between competing metering technologies in the marketplace (diaphragm, rotary, turbine, mass-flow, ultrasonic, etc.). Some of these “newer” technologies are not currently covered by a domestic US standard – creating a significant problem for the purchasers of these systems. A single performance-based standard that covers all metering technologies will serve to alleviate this issue.

The United States is also continuing the effort to harmonize its requirements in other areas of legal metrology with those of the International Organization of Legal Metrology (OIML). Because our system splits responsibility between the national government and the state governments, the National Conference on Weights and Measures (NCWM) and National Institute of Standards and Technology (NIST) are working as a team to focus attention on the need to harmonize national and international legal metrology standards.

3. Revision of the U.S. Taximeters Code to Allow Use of GPS Systems

A new USNWG on Taximeters was formed to develop proposals to revise the current Taximeters Code in NIST Handbook 44 (HB 44), “*Specifications, Tolerances, and Other Technical Requirements for Weighing and Measuring Devices.*” The purpose of this USNWG is to adequately address emerging technologies used to assess charges based on time and/or distance measurements in taxi applications and to ensure that the prescribed methodologies and standards facilitate measurements that are traceable to the International System of Units (SI).

The main body of the work group will target the completion of updating the existing Taximeters Code so that it will encompass current devices and technologies in use. In addition to this work, a subcommittee was formed to work towards the development of standards and requirements that specifically address the use of Global Positioning System (GPS) applications when they are used commercially to compute fares based upon distance and/or time measurements.

Some specific issues this work group is addressing include: defining a point-of-sale system (as it relates to taximeters), the definition of allowable “extra” charges, recording elements and recorded representations, and the provision for security seals on taximeters.

4. Unit Pricing Information

NIST has formed a new workgroup that is developing guidelines to improve the accuracy and usability of unit pricing information offered on retail store shelves in the United States. The workgroup includes representatives from industry and trade associations (such as the Food Marketing Institute), weights and measures officials, consumers and consumer groups (such as the National Consumer League and Consumers Reports), and other key stakeholders.

There is not a Federal Government mandate in the U.S. that requires unit pricing. Voluntary use of unit pricing by retailers is highly recommended because of its value to consumers and businesses. Providing clear and unambiguous information about the prices of products offered for sale not only helps to guarantee transparency in the marketplace, but also serves to protect consumers by permitting them to make value and price comparisons and educated purchasing decisions.

instead ISO has developed a yield estimating and claiming methodology that permits cartridges to be compared using a consistent yardstick.

One large issue in the U.S. is that allowing the “contents” declaration only by yield will possibly open the door for other commodities to request to change their labeling (e.g., loads of laundry). One resolution being considered is for inkjet/toner cartridges to be sold by volume and weight – and adding page yield as a supplementary statement. This will allow for weights and measures inspectors to verify the net contents, and also provide information for consumers to make value comparisons.

6. Moisture Allowance – Pasta & Noodle Products

A controversial item was adopted by the NCWM concerning a 3% “moisture allowance” for pasta and noodle products. These products are packaged in paper bags, paperboard cartons, and/or flexible plastic bags with a moisture content of 13 % or less at the time of pack. This new requirement will go into effect in January 2014.

Studies indicate that moisture loss for pasta products is reasonably predictable over time. Pasta exhibits consistent moisture loss when handled in a uniform manner. However, moisture loss can vary more than 4 % due to environmental and geographic conditions. Although it eventually reaches equilibrium with the surrounding atmosphere because it is hygroscopic, this balance does not occur until long after packaging and shipping. One potential problem is that manufacturers may possibly attempt to under-fill on purpose to take advantage of the allowance; correct net weight would need to be verified at time of packaging.

7. Aerosols and Similar Pressurized Containers

There are a number of products in the marketplace bearing quantity statements in terms of fluid measure that utilize the Bag on Valve (BOV) technology. Packages using BOV technology are generally pressurized containers but propellant is not dispensed with the product. Consumers are not able to do price and quantity comparisons between products packaged using BOV technology (which is being typically labeled by volume in the marketplace) and similar product in traditional aerosol packaging (required to be labeled by net weight) – because the aerosol packaged product includes the propellant in the net weight and the propellant is dispensed with the product. The NCWM is in the initial stages of working with industry and consumer groups to address this issue.

8. New IACET Accreditation for NIST’s Office of Weights and Measures

The International Association for Continuing Education and Training (IACET) has awarded the National Institute of Standards and Technology (NIST) Office of Weights and Measures (OWM) an "Authorized Provider" accreditation. IACET Authorized Providers are the only organizations approved to offer IACET Continuing Education Units (CEUs). In order to achieve Authorized Provider accreditation, NIST OWM completed a rigorous application process, including a review by an IACET site visitor, and successfully demonstrated adherence to the ANSI/IACET 1-2007 Standard addressing the design, development, administration and evaluation of its training program. The accreditation period extends for five years and includes courses offered or created that follow OWM procedures during that time.